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Original Article

# Validation of the Farsi version of the Death Obsession Scale among nurses

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ABSTRACT

*Objectives:* Obsession is one of the important aspects in death distress. The objective of this study was to estimate the reliability, validity, and factorial structure of the Farsi version of the Death Obsession Scale (DOS).
*Methods:* A convenience sample of 106 Iranian nurses from two hospitals at Tehran city, Iran was recruited. They completed the DOS, Death Concern Scale, Collett-Lester Fear of Death Scale, Death Anxiety Scale, Reasons for Death Fear Scale, and Death Depression Scale.
*Results:* Cronbach's $\alpha$ for the DOS was 0.95, and 2-week test-retest reliability was 0.74. The DOS correlated 0.48, 0.46, 0.47, 0.39 and 0.44 with the last mentioned scales, respectively ($P < 0.01$), indicating good construct and criterion-related validity. Principle components analysis of the DOS identified three factors accounted for 74.82% of the variance. Factor 1 labeled "Death rumination" (34.78% of the variance), Factor 2 labeled "Death dominance" (29.65% of the variance), and Factor 3 labeled "Death idea repetition" (10.38% of the variance).
*Conclusions:* The DOS has good validity and reliability, and it could be recommended for use in clinical and research settings to assess the death obsession in Iranian nurses.


## 1. Introduction

The concept of death obsession, as the third element of death distress, was introduced by Abdel-Khalek in 1998. His underlying rationale for coining this concept was the presence of a mutual and overlap relationship between death and obsession, i.e., a component of obsession in death, and death is a possible issue in obsession. According to his definition, death obsession is repetitive thoughts or ruminations, persistent ideas, or intrusive images that are centered around death of the self or significant others [1]. Tomas-Sabado and Gomez-Benito [2], Tomas-Sabado and Limonero [3] reported that death obsession, death anxiety, and death depression are different constructs and assess various aspects of human reactions toward death. In the same vein, Abdel-Khalek [4,5] stated that death distress included death obsession, death anxiety, and death depression.

Death obsession is a central feature of death anxiety and can play a significant role in the development of other anxiety disorders [6]. Many obsessive compulsive tendencies are semantically linked with death-related concerns about self or loved ones, for example germs, disease, and danger. Strachan, Pyszczynski, Greenberg, and Solomon [7] provided strong evidence that reminders of death are capable of intensifying compulsive behaviors. In their experimental study, patients who scored high on compulsive hand washing were found to spend more time washing their hands, and used more paper towel to dry their hands, following mortality salience induction, than patients scoring low on compulsive hand washing. This suggests that mortality salience may be a general factor in the experience of obsessive compulsive disorder (OCD), and may in some way explain the exaggerated focus that individuals with OCD place on the elimination of germs, disease, and danger. Consistent with this result, Abdel-Khalek [8] reported that Egyptian anxiety disorder patients had the higher mean score on the DOS than did normals (non-clinical), schizophrenic, and addicted patients.

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Previous studies suggested that health care professionals including nurses have inner struggles with the notion of death [9]. Nurses who were anxious/fearful about death may be depressed or obsessive about it [10]. Ayyad [11] reported that working in higher stress nursing departments such as ICU and Heart Department, had higher mean scores on death distress than did their counterparts working in lower stress departments such as internal medicine.

The Death Obsession Scale (DOS) was made by Abdel-Khalek. It was intended to be a main component in the death distress construct: death anxiety, death depression, and death obsession. The DOS assesses a multidimensional trait [1]. Tomas-Sabado and Gomez-Benito [2] reported the DOS could differentiate people with preoccupation about death from normal.

Cross-cultural comparisons indicated differences on the DOS. For example, Abdel-Khalek and Lester [12] showed that Kuwaiti students obtained a significantly higher mean score than did American students. Abdel-Khalek [13] found that Egyptian, Kuwaiti, Lebanese and Syrian male and female undergraduates scored higher on the DOS than did British, Spanish, and American undergraduates. Al-Sabwah and Abdel-Khalek [14] reported a significant difference on death obsession between freshmen and sophomore nursing students. Abdel-Khalek, Al-Arja, and Abdalla [15] found that Palestinians obtained a significantly lower DOS mean score than did participants from other Arab countries: Egypt, Kuwait, Lebanon, and Syria, indicating that Palestinians were adapted to strife and violence. Also researches on the sex-related differences on the DOS yielded mixed results. Women obtained higher mean DOS scores than did their male Kuwaiti and Lebanese participants. Salmanpour and Issazadegan [16] found a significant difference between males and females in which women scored higher than did men on the total DOS and its three components: death rumination, death dominance, and death idea repetition. However, there were non-significant gender differences on the DOS among Egyptian [8], American [12], and Syrian [17] college students.

There are different reasons for translating and adapting the Abdel-Khalek's DOS into the Farsi (Persian) language and studying its psychometric properties because cultural, ethnic, and socio demographic factors related to death can influence the severity of the death obsession in Iranian participants. Despite the good characteristics of the Arabic, English, Spanish, and Farsi versions of the DOS and its applicability in Egyptian, Kuwaiti, Lebanese, Syrian, Palestinian, Spanish, British, American, South African and Iranian college student samples, there were no published studies on the reliability, validity, and factorial structure of the DOS among Iranian nurses. The present research was carried out in order to adapt and implement the DOS in Iran. The DOS would be useful in research in personality, clinical practice and cross-cultural comparisons. To carry out research on death obsession in a different culture, there is a need to estimate the psychometric properties of the DOS. Thus, the aim of the present study was to develop a Farsi version of the DOS and to explore its psychometric properties in a sample of Iranian nurses.

## 2. Material and method

### 2.1. Participants

A convenience sample of 106 Iranian volunteer nurses was selected from different wards of two hospitals in Tehran, Iran: Hazrat-e Rasool General Hospital affiliated with Iran University of Medical Sciences, and the Khatam-AlAnbia General Hospital. The nurses were invited to voluntarily participate in the study, purpose of the research was explained to them and assurances were made that anonymity would be maintained. The nurses provided oral consent. The study protocol was approved by an institutional review board. In some circumstances, the institutional review board allows researchers to obtain verbal consent. We considered using verbal informed consent for reasons cultural issues were raised by signing any kind of document as was the cases in Iran as a Middle Eastern Society. So, written informed consent could act as a barrier to access of the data. Also data have collected in settings where it was inappropriate or technically difficult to obtain written informed consent. These interactions included informal data collection activities in work place of nurses. Inclusion criteria were as follows: nursing career, nurses working in the wards, and educational level of bachelor (BA) and Master of Science (MSc) degrees. Exclusion criteria were as follows: having medical diseases, and mental disorders. These criteria were identified by researchers during response of nurses to some questions in the demographic information sheet. Table 1 gives some demographic and professional data on the sample.

### 2.2. Measures

#### 2.2.1. The Death Obsession Scale (DOS)

The DOS was developed by Abdel-Khalek in Arabic and English [1,18]. Its 15-items were developed using students from University of Alexandria, Egypt. It is responded to on a five-point Likert-type rating scale as follows: No (1), A little (2), A fair amount (3), Much (4) and Very much (5). The total score can range from 15 to 75.

The DOS has shown high internal consistency, test-retest reliability and concurrent validity in different samples from different countries [1,15,19–21]. Its correlation with other death distress-related scales was larger than its association with general obsession, anxiety and depression scales [19]. Tomas-Sabado and Gomez-Benito [2] reported that the DOS had predicted correlations, good internal consistency and concurrent validity in Spanish college students. They concluded that this scale had good psychometric properties. Rajabi [22,23] reported the convergent validity of the DOS with the Padua Obsessive-Compulsion Inventory ($r = 0.43$, $P < 0.0001$). Lester [24] indicated a modest correlation between the DOS and the total score on the Wish to be Dead Scale (WDS) ($r = 0.37$).

**Table 1**
Characteristics of the sample.

| Variable | *n* | % |
|---|---|---|
| Age (years) | | |
| 20-29 | 27 | 25.5 |
| 30-39 | 51 | 48.1 |
| 40-49 | 20 | 18.9 |
| ≥50 | 6 | 5.7 |
| Sex | | |
| Women | 101 | 95.3 |
| Men | 5 | 4.7 |
| Appointment | | |
| Contract | 64 | 60.4 |
| Formal | 42 | 39.6 |
| Work experience (years) | | |
| 1-5 | 35 | 33.0 |
| >5 | 71 | 67.0 |
| Position | | |
| Staff nurse | 93 | 87.7 |
| Head nurse | 13 | 12.3 |
| Work shift | | |
| Rotational | 83 | 78.3 |
| Fixed | 23 | 21.7 |
| The number of patients per shift | | |
| 0-9 | 54 | 50.9 |
| Care of end stage patients in the past 3 month | | |
| 0-6 | 61 | 58.0 |
| Participation in reclamation operations in the past 3 month | | |
| ≥5 | 31 | 29.9 |

The factor analysis of the Arabic version of the scale with Egyptian undergraduates disclosed three-factor as follows: “Death rumination”, “Death dominance” and “Death idea repetition” [1]. Maltby and Day [19] used the English version of the scale with English adults and students, and identified identical three factor structure, which in turn replicated Abdel-Khalek's original structure [1]. Using a Spanish sample, the factor structure of the DOS was consistent with the original Arabic and English versions [2]. However, Abdel-Khalek and Lester [12] extracted a single “general death obsession” factor for a Kuwaiti student sample, and a two factor (“Death rumination” and “Death dominance and repetition”) solution among American students. Abdel-Khalek et al. [15] administered the DOS to the Muslim and Christian Palestinian participants in the Bethlehem area. They found a single “general death obsession” factor for women, and three factors (“Death rumination”, “Death dominance”, and “Death idea repetition”) for men. Rajabi's analysis of the DOS among Iranian first-entering undergraduate students yielded two factors: “Death rumination and dominance” and “Death idea worry” [23]. Mohammadzadeh et al. [21] extracted three factors in college students: “Death rumination, Death dominance”, and “Death idea repetition”. The correlations between the last– mentioned three factors with the DAS were 0.69, 0.61, and 0.58, respectively. Moripe and Mashegoane [25] identified two and three factor solutions on the DOS among South African university female and male students, respectively. They found that the scale had high reliability levels.

The DOS was translated into Farsi from English by two Iranian different translators and professionals. Then, the back translation technique was carried out to check on the adequacy of the translation by two English different translators and professionals. There were content adaptions in the translation and adapted process (Appendices A & B).

#### 2.2.2. Other scales

The following scales were also used in this study: the Death Concern Scale (DCS, Dickstein [26], the Collett-Lester Fear of Death Scale (CLFDS, Collett & Lester, Lesterr) [27,28], the Death Anxiety Scale (DAS, Templer [29], the Reasons for Death Fear Scale (RDFS, Abdel-Khalek [30], and the Death Depression Scale (DDS, Templer, Lavoie, Chalgujian, & Thomas-Dobson [31] (see Table 2). Previous studies have reported translation and adapted processes of the Farsi versions and also desirable reliability and validity for all the scales [32–45]. In the present study, the Farsi validated forms of the scales were used.

### 2.3. Data analysis

Data were analyzed by descriptive statistics, Pearson correlation coefficient, and principal components factor analysis to identify the number of factors to be retained. The criterion of eigenvalue greater than or equal to 1.0 was followed, and the Varimax orthogonal rotation of axes was adopted. The SPSS software version 23 was used.

## 3. Results

The mean total score on the DOS was 30.75 ± 12.36. The lowest item mean score was 1.69 ± 0.96 for the item 10 “I find myself suddenly thinking about death without warning.”, whereas the highest item mean score was 2.97 ± 1.16 for item 1 “Many questions about death come to my mind which I am unable to answer".

### 3.1. Reliability coefficients of the DOS

Cronbach's α was 0.95, the Spearman-Brown coefficient reached 0.90, whereas the Guttman Split-Half coefficient was 0.90, indicating high internal consistency (Table 2). Two-week test-retest reliability was 0.74, indicating acceptable temporal stability.

### 3.2. Correlations of the DOS

The Pearson correlations between each item and the total DOS scores ranged between 0.87 for item 10 and 0.51 for item 1 ($P < 0.01$), indicating moderate to high association between the items and the total score of the scale.

The inter-item correlations of the DOS ranged between 0.25, for items 1 and 5, and 0.85 for items 8 and 9 ($P < 0.01$), indicating the importance of each item in distinguishing the different aspects of the obsession of death using the DOS (Table 3).

### 3.3. Correlations of the DOS with other scales

Table 4 gives the DOS correlations with other scales. Reference to this table shows that the DOS correlations with the DCS, CLDFS, DAS, RDFS, and DDS ranged between 0.39 and 0.48 ($P < 0.01$), indicating construct, concurrent, and criterion-related validity of the DOS.

### 3.4. Factor analysis of the DOS

The criteria for the factor analysis were evaluated using the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and the Bartlett Test of Sphericity. The KMO was 0.921, indicating the adequacy of the present sample. The Bartlett's Test of Sphericity was 1355.689 ($df = 105$, $P < 0.001$), indicating that the factor analysis was justified in the present sample. The principal components analysis of the DOS 15 items with orthogonal rotation of Varimax disclosed three factors accounted for 74.82%.

Factor 1 (10 items) explained 34.78% of the observed variance and was labeled “Death rumination”. It included the items: “The idea that I will die keeps occurring to me”, “I can't get the notion of death out of my mind”, “I am preoccupied by thoughts of death”, “I find it greatly difficult to get rid of my thoughts about death”, “I think about the alarming and painful aspects of death, “I feel compelled to think about death”, “The idea of death overwhelms me”, “I have an exaggerated concern with the idea of death, “I find myself suddenly thinking about death without warning”, and “I think about death continually.”

**Table 2**
Descriptive statistics and Cronbach's a of all the scales ($n = 106$).

| Scales | Number of items | Format | M±SD | Cronbach's α |
|---|---|---|---|---|
| Death Obsession Scale | 15 | Likert (1–5) | 30.74 ± 12.35 | 0.95 |
| Death Concern Scale | 30 | Likert (1–4) | 72.72 ± 10.82 | 0.77 |
| Collett-Lester Fear of Death Scale | 32 | Likert (1–5) | 99.15 ± 25.14 | 0.94 |
| Death Anxiety Scale | 15 | True-False (0–1) | 8.27 ± 2.71 | 0.60 |
| Reasons for Death Fear Scale | 18 | Likert (1–5) | 57.70 ± 14.23 | 0.90 |
| Death Depression Scale | 17 | True-False (0–1) | 8.07 ± 4.34 | 0.84 |

**Table 3**
The Pearson correlations between items and the total score of the Death Obsession Scale (DOS) ($n = 106$)).[a]

| Item | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | – | | | | | | | | | | | | | | | |
| 2 | 0.491 | – | | | | | | | | | | | | | | |
| 3 | 0.289 | **0.672** | – | | | | | | | | | | | | | |
| 4 | 0.359 | **0.615** | **0.695** | – | | | | | | | | | | | | |
| 5 | 0.259 | **0.668** | **0.688** | **0.812** | – | | | | | | | | | | | |
| 6 | 0.423 | **0.599** | **0.612** | **0.585** | **0.577** | – | | | | | | | | | | |
| 7 | 0.348 | **0.571** | **0.583** | **0.533** | **0.539** | **0.736** | – | | | | | | | | | |
| 8 | 0.283 | **0.627** | **0.619** | **0.686** | **0.697** | **0.584** | **0.678** | – | | | | | | | | |
| 9 | 0.336 | **0.565** | **0.603** | **0.634** | **0.679** | **0.584** | **0.620** | **0.851** | – | | | | | | | |
| 10 | 0.296 | **0.613** | **0.663** | **0.665** | **0.753** | **0.537** | **0.613** | **0.833** | **0.839** | – | | | | | | |
| 11 | 0.353 | 0.487 | **0.542** | **0.585** | **0.628** | 0.498 | **0.522** | **0.756** | **0.763** | **0.747** | – | | | | | |
| 12 | 0.264 | **0.514** | **0.635** | **0.507** | **0.500** | 0.489 | **0.562** | **0.605** | **0.565** | **0.682** | **0.524** | – | | | | |
| 13 | 0.338 | 0.461 | 0.423 | 0.433 | 0.477 | 0.473 | 0.416 | **0.625** | **0.718** | **0.577** | **0.668** | 0.344 | – | | | |
| 14 | 0.472 | **0.540** | **0.565** | **0.552** | **0.557** | **0.524** | 0.499 | **0.619** | **0.677** | **0.661** | **0.652** | **0.547** | **0.719** | – | | |
| 15 | 0.385 | **0.555** | **0.584** | **0.581** | **0.641** | 0.467 | 0.495 | **0.634** | **0.655** | **0.694** | **0.720** | 0.496 | **0.646** | **0.735** | – | |
| Total | **0.514** | **0.773** | **0.792** | **0.796** | **0.814** | **0.751** | **0.753** | **0.865** | **0.865** | **0.871** | **0.808** | **0.707** | **0.714** | **0.803** | **0.799** | – |

*Note*: $P < 0.01$ for all data. See the items in Table 5

[a] Items of high loading (>0.50) are given in bold to clearly differentiate the correlations.

Factor 2 (7 items) explained 29.65% of the observed variance and was labeled: "Death dominance". It included the items: "The idea of death overwhelms me", "I have an exaggerated concern with the idea of death", "I find myself suddenly thinking about death without warning", "I fear being preoccupied by the idea of death", "Thinking about death causes me a great deal of tension", "I am annoyed that I keep thinking about death, and "I am overwhelmed by the thought that I will die suddenly". The first item was not significantly loaded on any of the factors.

Factor 3 (1 item) explained 10.38% of the observed variance and was labeled "Death idea repetition". It included the item: "Many questions about death come to my mind which I am unable to answer" (Table 5 and Fig. 1).

## 4. Discussion

The results of the present study showed that the mean death obsession score among the nurses was 30.74 ± 12.35. This mean score was a slightly lower than that among Egyptian female college students [1]. The Cronbach's a coefficients of the DOS were 0.951, for Factor one 0.944, and for Factor two 0.942, indicating high internal consistency and the test–retest reliability indicated acceptable temporal stability. These results were consistent with previous studies of the different versions of the DOS in Arabic, Spanish, British, American and South African college students in which they reported good reliability and concurrent validity of the DOS [1,2,12,15,19,21,23,46,47]. The results of the current study showed that the inter-item correlations of the DOS ranged from low to high; and the item- total score correlations ranged between moderate and high. These findings were consistent with the Rajabi's results on Iranian participants [23].

It was found also that the DOS significantly correlated with the other scales of death distress, indicating concurrent validity. This result was consistent with several previous studies on the correlates of the DOS in different samples. Maltby and Day [19] found statistically significant positive associations between death obsession and anxiety, depression, and neuroticism in two U.K samples. Moripe and Mashegoane [25] reported that the DOS correlated with death anxiety and fear, showing concurrent validity of the scale. Abdel-Khalek and Maltby [48] recruited college students from Kuwait and U.K. They found that among both samples, death obsession significantly and positively correlated with anxiety and pessimism, and negatively with physical health, mental health, happiness, satisfaction with life, and optimism. They found also that anxiety among the two samples, pessimism among the Kuwaiti sample, and (un) happiness in U.K. provide a good theoretical and empirical context for understanding the causes and consequences of death obsession. Shiekhy, Issazadegan, Basharpour, and Maroei Millan [49] found a significant positive relationship between death anxiety and the DOS components: death rumination, death dominance and death idea repetition in nursing college students from Iran. Ashouri, Hosseini, Ghariblo, Kalhor, and Ganj Khanlo [50], and Shiekhy et al. [49] found also a significant positive association between the three DOS components in Iranian college students. Salmanpour and Issazadegan [16] indicated a significant positive relationship between death obsession and neuroticism on the NEO-FFI personality inventory. Other personality factors had negative associations with death obsession. Extrinsic orientation toward religion and neuroticism predicted 19% of the variance in death obsession. Ashouri et al. [50] indicated a significant negative association between hope and the DOS components: death rumination, death dominance and death idea repetition in Iranian college students. On the 9-item DOS, Lester [24] reported that obsession with death had modest correlations with wish to be dead.

Preoccupation with death can cause anxiety and depression in some religious people. With U.K. college students, Maltby and Day [51] found a significant, negative correlation between the DOS and an intrinsic orientation toward religion, whereas the correlation was positive between the DOS and an extrinsic– personal orientation toward religion, and between the DOS and an extrinsic- social orientation toward religion. Using a sample from Iran, Mohammadzadeh and Najafi [52], and Salmanpour and Issazadegan [16] indicated a positive relationship between death obsession and extrinsic orientation toward religion in men and women, but death obsession had a negative relation with intrinsic orientation toward religion. Further, Mohammadzadeh and Najafi [52] found that extrinsic religious orientations in women predicted death

**Table 4**
The Pearson correlations ($r$) between the scales ($n = 106$).

| Scales | $r$ with DOS |
|---|---|
| Death Concern Scale | 0.48 |
| Collett-Lester Fear of Death Scale | 0.46 |
| Death Anxiety Scale | 0.47 |
| Reasons for Death Fear Scale | 0.39 |
| Death Depression Scale | 0.44 |

*Note*: $P < 0.01$.

**Table 5**
Factor loadings (≥0.50) of the Farsi version of the Death Obsession Scale (DOS) in Iranian nurses ($n = 106$).

| | Component | | |
|---|---|---|---|
| Death Obsession Scale (DOS) Items | 1 | 2 | 3 |
| 1. Many questions about death come to my mind which I am unable to answer | | | 0.894 |
| 2. The idea that I will die keeps occurring to me | 0.679 | | |
| 3. I can't get the notion of death out of my mind | 0.797 | | |
| 4. I am preoccupied by thoughts of death | 0.742 | | |
| 5. I find it greatly difficult to get rid of my thoughts about death | 0.744 | | |
| 6. I think about the alarming and painful aspects of death | 0.684 | | |
| 7. I feel compelled to think about death | 0.716 | | |
| 8. The idea of death overwhelms me | 0.643 | 0.636 | |
| 9. I have an exaggerated concern with the idea of death | 0.529 | 0.735 | |
| 10. I find myself suddenly thinking about death without warning | 0.653 | 0.646 | |
| 11. I fear being preoccupied by the idea of death | | 0.781 | |
| 12. I think about death continually | 0.681 | | |
| 13. Thinking about death causes me a great deal of tension | | 0.843 | |
| 14. I am annoyed that I keep thinking about death | | 0.723 | |
| 15. I am overwhelmed by the thought that I will die suddenly | | 0.727 | |
| Eigen value | 5.21 | 4.44 | 1.55 |
| % of variance | 34.78 | 29.65 | 10.38 |
| % of total variance | 74.82 | | |

Note. Factor 1 (items: 2, 3, 4, 5, 6, 7, 8, 9, 10, and 12): Death rumination.
Factor 2 (items: 8, 9, 10, 11, 13, 14, and 15): Death dominance.
Factor 3 (item: 1): Death idea repetition.

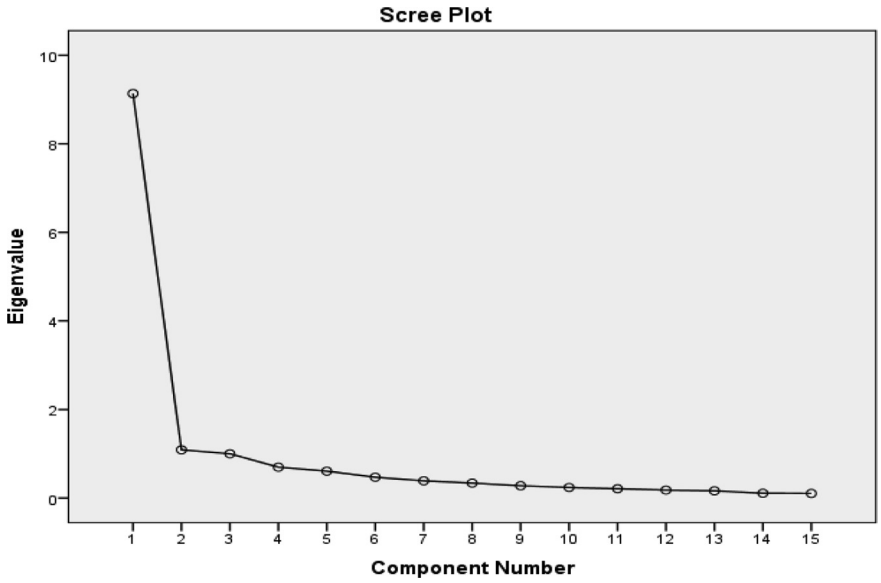


**Fig. 1.** Scree plot for the DOS.

obsession with greater power. Negative relationship between intrinsic religious orientations with death obsession could be elucidated in the light of religious immaturity which caused pathological attitudes toward death. Issazadegan, Salmanpour, and Qasimzadeh Alishahi [53] commented on the good features of the DOS, and added that it was predicted and explained by the testable hypotheses of the relation between personality dimensions and religious orientation. Mohammadzadeh [54] found that predictors of death obsession were negative religious coping and insecure attachment toward the God. Death obsession correlated with considering the God as the punishment and insecure source. Moripe and Mashegoane [25] reported that the DOS was not correlated with religious orientation.

A principal component analysis disclosed two factors accounted for 74.82% of the variance. The three factors labeled: "Death rumination", "Death dominance", and "Death idea repetition". This result is consistent with the three components in the original Arabic, the Spanish and English versions of the DOS [1,2,&19]], as well as the results of Mohammadzadeh et al. [21]. Factor analysis studies of the 15 items of the DOS indicated that the scale did not assess a one-dimensional trait. However, the present result was conflicted with Rajabi's study who obtained two factors (53% of the total variance and applied the Promax Rotation) [23]. In the study of Abdel-Khalek and Lester [12], one factor for a Kuwaiti, and a two factors for the American students were disclosed. Abdel-Khalek et al. [15] disclosed a single "general death obsession" factor for female, and three factors for male Palestinans. Moripe and Mashegoane [25] disclosed two factors for South African female

and three factors for male students.

The different number of factors in the aforementioned studies may be due to the different characteristics of the samples with different religions, backgrounds, and cultures, using different methods of factor analysis, and various rotation methods. The only study which was incompatible with the present one is the study of Rajabi [23]. However, it is more suitable to depend on the total DOS score. In the present study some items loaded into two factors. In a coherent construct like death obsession, it is predictable to find that three items out of the full scale of 15 items loaded onto two factors. Because the three items had approximately similar loadings, they could be belong to both factors.

The present study had some limitations that should be taken into account. The first limitation is the sample. The majority was females and in a specific occupation, i.e., nursing. Further, the sex differences on the DOS were not assessed that is another limitation of this study. Therefore, it is suggested to use different samples in different age groups and other occupations. Another limitation may be the content validity (logical or rational validity) was not tested in this study. Content validity can represent all facets of a given construct. Associations of the DOS with other psychological concepts such as personality factors, and religious spiritual well-being are recommended for further studies.

## 5. Conclusions

It could be concluded that the DOS has good validity and reliability, and it can be used in clinical and research settings. The present findings reveal the adequate and acceptable psychometric characteristics of this Farsi version of the DOS in the Iranian sample of nurses and confirmed the multidimensionality hypothesis of the DOS proposed by Abdel-Khalek [1], and also justify the use of the DOS in Farsi-speaking health care professionals in order to evaluate death obsession. According to the current findings, the Farsi (Persian) form of the DOS is a reliable and valid scale and can be used to assess death obsession in the Iranian nurses. The availability of the Farsi form of the DOS may provide an opportunity for researches to conduct cross-cultural comparisons. Future studies would be conducted with diverse populations and different socio-demographic backgrounds such as age, sex, education, occupation, quality of life, and life style.

## Conflicts of interest

The authors declare that there is no funding source, and no conflict of interest regarding the publication of this paper.

## Appendices. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.ijnss.2018.04.004.

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